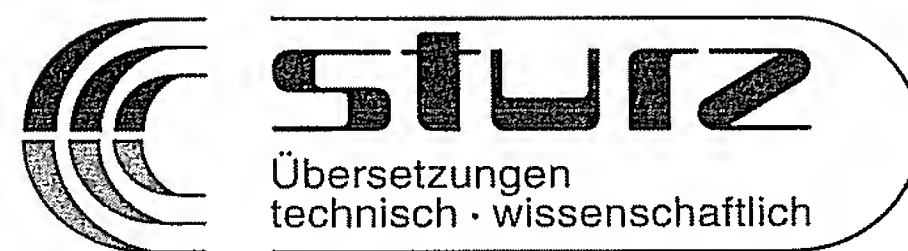


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In the matter of  
International Patent Application No. PCT/EP2005/001857  
Hansgrohe AG

## TRANSLATOR'S CERTIFICATE

I, Dr. Wolfgang Sturz, certified, court appointed and sworn translator for the English language hereby certify that the attached translation is, to the best of my knowledge and belief, a true translation of European Patent Application No. PCT/EP2005/001857.

Signed:

Dated: Reutlingen, July 25, 2006



Description**Shower head arrangement**

The invention refers to a shower head arrangement, with which a long stretched profile is fixed on a wall surface. The profile serves for accommodating water deliveries and accommodating parts of the fittings.

In a known arrangement of this type (EP 422 972), the profile features a protrusion on its front side, so that a sanitary fitting can be accommodated within the profile. The rest of the piping is accommodated within the profile. The profile is therefore meant for surface mounting.

It is likewise familiar to use a plate for covering a channel in a wall. Within the channel, i.e. concealed installation, the pieces of a sanitary fitting are accommodated.

The invention is based on the task of providing a shower head arrangement that is built flat so that the shower head arrangement can also find application in congested space conditions. Furthermore, the danger of getting hurt on projecting parts of the shower head arrangement should be reduced. Furthermore, it should be possible to use a profile for the manufacture of such shower head arrangements that can be easily shortened for different lengths and sizes of arrangements.

To solve this task, the invention proposes a shower head arrangement with the features mentioned in claim 1. Embodiments of the invention are subject matter of the subordinate claims.

The invention thus uses a combination of a flat profile that can essentially feature a uniform cross-section over its entire length, and a concealed fitting that can be accommodated in a channel of the wall or in an opening of a back-ventilated wall

and which is fully covered by the profile towards the front. This creates an elegant view of a shower head arrangement without protruding parts, obviously with the exception of the shower head itself.

In particular, it can be provided in an embodiment of the invention that the fittings can be fixed on the profile. Obviously it is also possible that the fittings can be additionally fixed and secured with the help of the house installation piping.

In an embodiment of the invention it can be provided that the shower head arrangement features a concealed box that protects and covers the fittings and the connection parts outwards and can additionally serve to prevent the seepage of condensed water or similar into the wall.

The concealed box is normally fixed directly on the wall, for instance, laterally on the channel in which it is installed. It is also possible that the concealed box is fixed on its base in the channel. According to the invention it can be provided that the concealed box may be additionally or only fixed on the profile or, expressed otherwise, that the profile may be fixed on the concealed box.

Obviously, it is also possible that the fittings may be fixed both on the concealed box and on the profile as well.

In a development according to the invention it can be provided in an embodiment that the lateral extension of the concealed box and/or the concealed fitting is smaller than the width of the profile. This should ensure that the profile covers the fittings or the fitting body, so that it is not visible.

Since the profile features a certain thickness or height, namely in order to accommodate the piping and similar items, it can be provided according to the invention that the concealed fitting extends somewhat up to the interior part of the profile. This can compensate plaster thickness variations.

According to the invention the shower head arrangement can feature a shower handset and a holder for this shower handset, wherein the shower handset is connected by means of a hose. The water delivery for this hose can be provided within the profile through a channel formed there and/or through a hose routed in the profile.

It can be provided that the hydraulic connections between the profile and the fittings are formed as clamped joint connections, which interlock when assembling the profile on the fittings.

As an alternative the invention proposes connecting the fittings firmly with the profile and providing a clamped-joint connection with the water supply piping inside the wall.

This connection can then compensate plaster thickness and at the same time also be formed as a wall finish. This leads to a particularly simple installation. Also in the event of service, this has great advantages for the repair person.

In the version where the profile is fixed on the concealed box or on the fittings, instead of the screw-connection as a quick coupling, for instance, a bayonet fitting or a similar connection can be provided.

In any case, it can be provided that possible angular offset is provided between the parts fixed in the wall parts and the profile.

The profile or the shower head arrangement can at least, but preferably, feature several side shower heads. These side shower heads protrude only slightly above the surface of the profile, so that the space required still remains small. According to the invention it can be provided that several side shower heads are individually supplied with water controlled by the fittings.

Further features, details, and preferences of the invention result from the following description of a preferred embodiment of the invention, the patent claims, and the abstract, by both of which the wording is based on reference to the content of the description, as well as on the basis of the drawing. The following are shown:

- Figure 1      a schematic side view of a shower head arrangement according to the invention;
- Figure 2      a front view of the arrangement of Figure 1;
- Figure 3      a cross-section through the profile in a magnified scale;
- Figure 4      a schematically magnified depiction of the connecting parts between the fittings and profile;
- Figure 5      likewise in a magnified scale, a possibility of fixing the concealed box on the profile;
- Figure 6      a cross-section through the attachment of a side shower head;
- Figure 7      the view of a side shower head from the profile outwards;
- Figure 8      simplified view of a clamped-joint connection between the fittings and the installation.

Figure 1 shows the shower head arrangement in a side view according to the invention. The shower head arrangement contains a flat profile 1 with a flat rear side 2. The front side 3 facing away from the rear side 2 can be slightly convex in cross-section. The profile 1 is meant to be mounted such that its rear side 2 lies on the wall surface. It can be fixed with common means. The long stretched profile 1



is usually mounted in vertical alignment. On the front side 3 of the profile 1 in the top most area, a holding bracket 4 for attaching a shower handset is provided. The holding bracket 4 can be adjustable in longitudinal direction, that is, from top to bottom and vice versa.

Approximately in the middle area of the longitudinal extent of the profile 1, that means, about half-way of the height, adjusting and operating organs 5, 6 for a sanitary fitting are attached, arranged in the section on the rear side 2 of the profile. The sanitary fitting is surrounded by a concealed box 7 that protectively encloses the latter.

On the front side 3 of the profile 1 in the bottom and middle section, individual side shower heads 8 are arranged, which can be activated with the help of the operating organs 5, 6.

Figure 2 shows the shower head arrangement from the front. The width of the profile 1 is chosen such that also in the unmounted state of the concealed box 7 and the sanitary fitting in it, it cannot be seen. The section in which the operating organs 5, 6 are provided, can feature an additional rosette 9. At the lower end 10 of the profile 1 a connection 11 for a shower head hose 12 is located, which can be activated via the operating organs 5, 6. At the end of the hose 12 a shower handset connected, which can be hung in the holding bracket 4 in the usual manner.

The front side of the profile 1, approximately in the middle between its two longitudinal edges in the upper section, has an undercut slot 13, in which the holding bracket 4 for the shower head is accommodated in a displaceable manner.

The side shower heads 8 are positioned symmetrically along the centre line, laterally offset.

The depicted shower head arrangement is mounted such that the concealed box, with the fittings it contains, is accommodated in a wall channel, so that the rear side 2 of the profile 1 lies on the wall surface. The arrangement is fixed in this position. The arrangement has the advantage that it is very flat. The thickness of the profile 1 is determined such that it must be accommodated in the profile piping and holding brackets.

Figure 3 shows the formation of the profile 1 in a magnified cross-section . The profile features a flat rear side 2, see also Figure 1. The front side 3 in the depicted example is also flat. It can also be slightly concave or convex in curvature from design viewpoint. Approximately in the middle between the two longitudinal edges a channel 14 is constructed on the rear side of the front wall 3, which is accessible through the previously mentioned slot 13 from the front side. This slot 13 features a smaller width than the channel 14, so that the edges of the slot 13 have an inner undercut. In this position the holding bracket 4 for the shower handset can have a clamping purpose. The channel 14 is continuous in formation over the entire length of the profile. The slot 13 can be milled subsequently after the completion of a profile section. As one can derive from Figure 2, the slot 13 is only available in the upper section of the profile. The channel 14, however, continues through the entire length.

The front side 3 and the rear side 2 are joined together by means of two webs 15. The webs 15 run slightly convex in order to accommodate the piping. The webs 15 run likewise over the entire length of the profile. They divide the interior of the profile in three chambers.

On the rear side of the front wall 3, still further channels 16 are formed inside the two external chambers, which are bounded by a slotted parallel wall 17. These flat channels 16 serve for accommodating the side shower heads, and will be described in the following passage.

Figure 4 shows a magnified scale from the same direction in Figure 1 shows the point of connection between the concealed box 7 and the profile 1. In the concealed box 7, a connection block 20, a fitting body 21, and two corresponding fitting elements 22, 23 are accommodated. The one fitting element 22 can for instance be a flow control, whilst the other fitting element can be a switch-over unit between different shower heads. These fitting elements 22, 23 protrude up into the profile 1.

In the section of the concealed box 7 the rear wall 2 of the profile 1 is cut out, so that here the fitting parts can have space. Also the front wall 3 is cut out, wherein a rosette can be attached here. The rosette is usually fitted to the fitting parts so that the profile must be formed specially for this purpose.

The concealed box 7 features a base 24 and a side wall 25 on which a flange 26 is aligned outwards. The flange 26 can serve for fixing the concealed box 7 on the wall.

Figure 6 shows a section transverse to the direction of the Figure 4. It can also be seen here that the rear wall 2 of the profile is cut away. In a side section 27 of the rear wall 2 the profile 1 is fixed on the concealed box 7. For this, a screw 28 is used, which is inserted through a hole in the rear wall 2 and screwed in an opening 29 of the concealed box 7. This opening 29, which is a relatively long hole, can feature a thread. However, it is also possible for the screw 28 to cut its own thread. In this manner, the profile can be determined on the concealed box 7, which on its own is attached in the wall. In addition, it can be fixed between the fitting body 21 and the profile 1.

Figure 6 shows the attachment of a side shower head 8 on the profile 1. Where a side shower head 8 should be attached a hole is drilled in the front side 2 of the profile, and thus aligned relative to the slot 30 of the parallel wall 17. From the rear side a counter piece 31 is inserted into the slot 30, see Figure 7, which features an



opening towards the front. In this opening, the body 32 of the side shower head 8 is inserted and locked. On the body 32 the spray body 33 is attached, which features spray outlet openings on its front side. Based on the approximated spherical form of the body 31, the spray body 33 can be swivelled slightly. The counter piece 31 of the side shower head 8 features two side extensions 34, 35 which are in connection with the through-hole 36 of the body 31 of the side shower head 38. The one side extension 35 serves for attaching a hose. The other side extension 34 can either be used for a hose leading further, or be closed by means of a plug. In this manner, it is possible to connect several side shower heads 8 in a series, see Figure 2, by means of a hose. Then, all side shower heads 8, for instance of one row, can be activated by the sanitary fitting at the same time. It is also possible, based on the type of the change-over switch being used, for all side shower heads to be activated individually or also in groups.

With the embodiment depicted, strongly simplified in Figure 8, the main fitting element 20, to be connected with the house installation, features open connections that can be inserted or stuck into the corresponding parts of the fittings 21. Due to reasons of simplification, the seals, fastening devices, or similar items are omitted. With this type of formation, obviously also in a concealed box, connection with the main fitting element 20 and the house installation can take place. Finally the unit consisting of the profile and the fittings fixed on the profile are drawn near the wall and its channel and this unit is inserted and stuck into the mounted element 20. Through this, the installation is simplified and easy. Furthermore, this obviously also has advantages in case of having to exchange the fittings.

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